spectrograph, the recorded signals can be dominated by the out-of-band component. At the present time, the processing algorithms use the results from the blue spectrograph up to 620 nm, and those from the red spectrograph beyond 620 nm. The differences are generally stable in time and depend on depth, another indication that the effect is related to source spectral shape.

To correct for stray light, the function that describes the sensitivity to flux at wavelengths other than the desired wavelength must be determined. This requires a tunable, monochromatic source that fills the entrance pupil of the sensor. Improvements in technology and the recent addition of new facilities at NIST have made it possible to fully characterize sensors such as CCD spectrographs using fully tunable laser-illuminated, integrating sphere sources (Brown, Eppeldauer, and Lykke 2000). The facility is called Spectral Irradiance and Radiance responsivity Calibrations with Uniform Sources (SIRCUS).

A thorough stray light characterization study for the MOBY project was begun in early 2000. Work started on SIRCUS with a MOS bench unit (Habauzit *et al.* 2002), and continued with the full characterization of MOS202 (which is used as a profiler instrument). Measurements are ongoing for the MOBY MOS units. The SIRCUS measurements yield the absolute radiance response of the sensors. Examples of the response of a single column in the blue spectrograph (column 380), and of the red spectrograph (column 277), are shown in Fig. 2.13 and Fig. 2.14 for the MOS profiler. The small peak near 510 nm for the blue spectrograph is caused by flux diffracted in second order and reflected onto the CCD by the grating and the second spherical mirror.

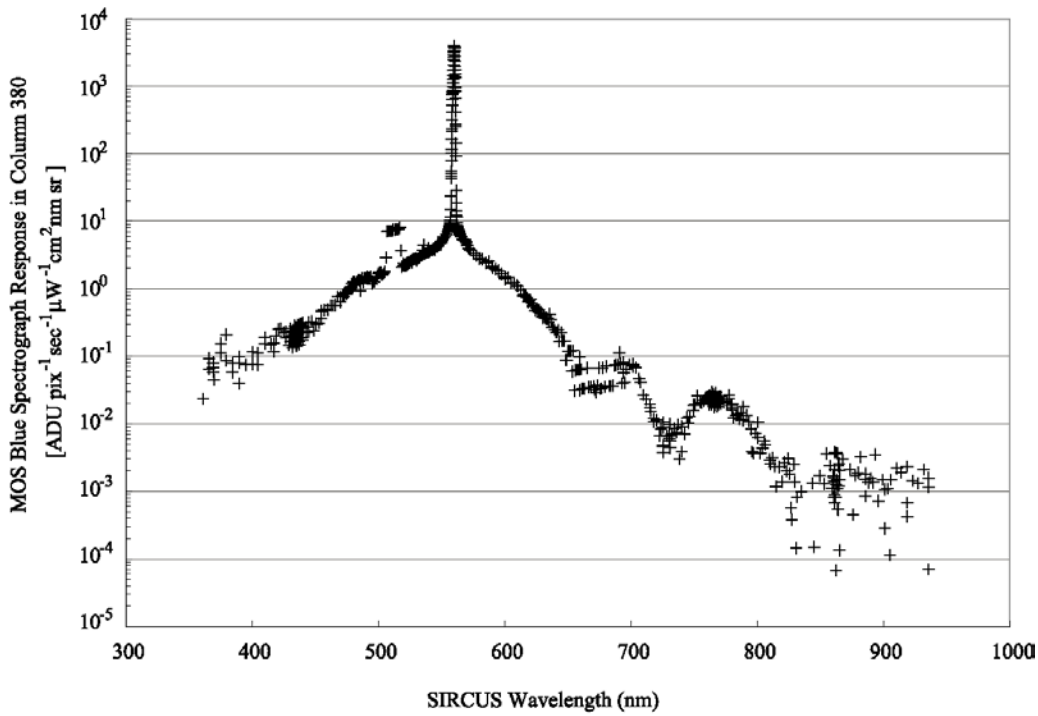

Figure 2.13: An example of the wavelength dependent spectral stray light responsivity of one CCD pixel location (wavelength) for the MOS blue spectrograph.

A stray light correction algorithm was developed that is based on determination of the in-band region for one column on each CCD spectrograph, a description of the shape of the out-of-band response, and a model to account for the effects of the second order "reflection peak" (Brown *et al* 2002). To date, the SIRCUS results for the MOS profiler have been used to implement a preliminary version of the stray light correction algorithm, and test applications to the MOCE5 data sets are extremely encouraging. These preliminary results indicate that stray light affected the MOS Profiler results during MOCE 5 by up to +5 % at 412 nm (the uncorrected radiances are too small) and up to -1.5 % at 546 nm (the uncorrected radiances are too large).